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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WHIPKEY, JASON T

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/391,943

Applicant(s)

OHYAMA ET AL.

Examiner

Jason T. Whipkey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7 and 8. 6) ☐ Other: .

DETAILED ACTION

Drawings

- ✓1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because figures 6B and 7B include the reference sign "39", which is not mentioned in the description. Corrected drawings or an amendment to the specification to add the reference signs in the description are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
- ✓2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the reference sign "42" mentioned on line 10 of page 18 of the description. Corrected drawings or an amendment to the specification is required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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- ✓4. The specification is objected to because lines 4-6 on page 8 describe Figure 13 as "an example of a rotation angle input apparatus of a turntable type"; however, Figure 13 clearly does not match this description.

Correction is required.

- ✓5. The abstract of the disclosure is objected to because it is unclear. Correction is required. See MPEP § 608.01(b).

Claim Objections

- ✓6. Claims 10, 17, and 23 are objected to because of an informality. It is believed that "environment formation" on lines 7, 7, and 5, respectively, of each claim should be replaced with -- environment information --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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- ✓ 8. Claims 10 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 23 recite the limitation "the reproducing environment information" on lines 12 and 15, respectively. There is insufficient antecedent basis for this limitation in the claim. For examination purposes, these claims will be treated as if they read, "reproducing environment information".

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1 and 2 are rejected under the judicially created doctrine of double patenting over claims 1, 2, 8, 16, 19, 20, and 24 of U. S. Patent No. 6,466,334.

A double patenting rejection is necessary because the application is a broader recitation of the same invention granted a patent in U.S. Patent No. 6,466,334. A patent on the application would result in an unjustified timewise extension of the monopoly granted by the previously issued patent. Furthermore, in this situation, it is imperative that the previously issued patent and any patent resulting from the current application be commonly owned.

11. Claim 1 is rejected under the judicially created doctrine of double patenting over claims 1, 2, 16, 19, and 20 of U. S. Patent No. 6,466,334.

Each of claims 1, 2, 16, 19, and 20 in the previously issued patent includes a color reproduction device ("an image processing apparatus") for processing an input image of a subject ("an object") captured by an image input device ("an image input apparatus"). The color reproduction device includes color correction means ("a reproducing environment converting unit") for processing an image prior to output by an image output device ("an image output apparatus"). The color correction means converts the input image into the output image using information concerning the color reproduction environment ("a desired reproducing environment") determined when the image is shot ("photographing environment information") and when the image is output and observed ("observing environment information").

12. Claim 2 is rejected under the judicially created doctrine of double patenting over claims 8 and 24 of U. S. Patent No. 6,466,334.

Both claim 8 and claim 24 in the previously issued patent include a color correction preprocessing section ("a color converting unit") for converting image data captured by the input device using at least one of information concerning the image input device ("information on the image input apparatus") and spectral data on lighting used in shooting the subject with the image input device ("photographing illumination spectrum information").

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-4, 9, 10, 14, 17, 18, 23, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Ooyama (Japanese Patent Application Publication No. 09-172649).

Regarding claim 1, Ooyama discloses a photographic system with spectrum picture photography means 10 ("an image input apparatus") for capturing a photographic subject ("an object") (page 4, lines 22-23 of the provided machine translation). Processing means 30 ("a reproducing environment converting unit") uses lighting data captured by light spectrum detection means 20 ("photographing environment information" and reproduction ambient light spectrum detection means 70

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("observing environment information") to reproduce the captured image (page 4, lines 25-30).

Regarding claim 2, Ooyama teaches that both the photographing and reproducing sides of the apparatus measure the lighting spectrum ("illumination spectrum information") on their respective sides (page 5, lines 27-41).

Regarding claims 3 and 18, Ooyama teaches that both the photographing and reproducing sides of the apparatus measure the lighting spectrum ("photographing light source information" and "illuminating light form information") on their respective sides (page 5, lines 27-41).

Regarding claim 4, Ooyama teaches that the image presented on the reproducing side is corrected for the lighting on both the photographing and reproducing sides of the system (page 8, line 22, through page 9, line 2).

Regarding claim 9, Ooyama teaches that processor 30 includes interpolator 32 for outputting data to spectrum memory 33, which collects the data ("an image composing and interpolating unit") (page 7, lines 37-39).

Regarding claims 10, 17, and 23, Ooyama teaches that computing element 35 ("a reproducing environment-variable image data producing unit") performs and applies calculations to the image data ("reproducing environment-variable image data") based on the lighting detected on the photographing side of the system (page 9, lines 22-28). As shown in Drawing 3, the data is transmitted over a communication line ("a network") through communication-interface equipment 40 and 45 ("data transmitting means") (page 6, lines 39-40). Processor 60 ("a reproducing environment-variable image data

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processing unit") modifies the received image data in accordance with the lighting detected on the reproducing side of the system (page 6, lines 41-46).

Regarding claims 14 and 26, Ooyama teaches that the image is captured by a single multi-spectrum camera 10 (page 6, lines 18-19).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 5, 6, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooyama in view of Minami (U.S. Patent No. 6,014,472).

Claim 5 may be treated like claim 3. However, Ooyama is silent with regard to including an illuminating light position converting unit.

Minami discloses an image processing device that produces shadows associated with an object captured in an inputted video signal. A two-dimensional form of the video signal is stored in frame memory 12 in shadow signal producing section 20 ("an illuminating light position converting unit") (column 4, lines 21-37). Shadows produced based on the position of a point light source selected by the operator are calculated and applied to the video (column 17, line 57, through column 18, line 7).

An advantage to producing a video signal of an object with a light source at a desired position is that the lighting of a subject may be improved without the expense of re-shooting the scene. For this reason, it would have been obvious at the time of invention to have Ooyama's system include the virtual light positioning system described by Minami.

Claim 6 may be treated like claim 3. However, Ooyama is silent with regard to including an object position converting unit.

Minami discloses an image processing device that produces shadows associated with an object captured in an inputted video signal. A two-dimensional form of the video signal is produced by shadow signal producing section 20 ("an object position converting unit") (column 4, lines 21-37). The position of the object selected by the

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operator ("object position information") and used to calculate the location of shadows (column 30, line 46, through column 31, line 28).

An advantage to producing a video signal of an object relocated at a desired position is that the position of a subject may be improved without the expense of re-shooting the scene. For this reason, it would have been obvious at the time of invention to have Ooyama's system include the virtual light positioning system described by Minami.

Regarding claims 19 and 20, Ooyama teaches that processor 30 includes interpolator 32 for outputting data to spectrum memory 33, which collects the data ("an image composing and interpolating unit") (page 7, lines 37-39).

18. Claims 7, 8, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooyama in view of Katayama (U.S. Patent No. 6,256,035).

Claims 7 and 8 may both be treated like claim 3. However, Ooyama is silent with regard to allowing an object to be observed from a desired position or direction.

Katayama discloses an imaging system that includes camera 803 for capturing an image of object 801 on turntable 802, as shown in Figure 8. After the image is captured, the user may enter a point at which to place the "virtual camera" (column 5, lines 16-35). CPU 102 ("an object direction converting unit" and "an observer position converting unit") performs this processing (column 4, lines 3-4).

An advantage to producing a video signal of an object relocated at a desired position is that the viewer may obtain more information, as desired, about an object. A

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viewer can therefore get a more accurate impression of the object. For this reason, it would have been obvious at the time of invention to have Ooyama's system include the virtual camera positioning system described by Katayama.

Regarding claims 21 and 22, Ooyama teaches that processor 30 includes interpolator 32 for outputting data to spectrum memory 33, which collects the data ("an image composing and interpolating unit") (page 7, lines 37-39).

19. Claims 11, 12, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooyama in view of Jones (U.S. Patent No. 3,564,988).

Claims 11 and 24 may be treated like claims 1 and 2, respectively. However, Ooyama is silent with regard to including a turntable controlled by an image input apparatus for rotating an object.

Jones shows turntable 60 in Figure 1. The turntable controls are incorporated in stationary camera assembly 10 (column 3, lines 28-29). Turntable 60 is rotated relative to camera assembly 10 (column 3, lines 44-45).

An advantage to using a turntable to rotate an object is that a profile of an object may be captured at a variety of angles. For this reason, it would have been obvious at the time of invention to have Ooyama's system include the turntable described by Jones.

Regarding claim 12, Jones teaches that turntable 60 may be both rotated and tilted relative to camera assembly 10 (column 3, lines 44-45).

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20. Claims 13 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooyama in view of Sato (U.S. Patent No. 4,794,262).

Claims 13 and 25 may be treated like claims 1 and 2, respectively. However, Ooyama is silent with regard to including point light source applied at a programmed angle.

Sato discloses an apparatus that captures a three-dimensional profile of an object, as shown in Figure 1. Image sensor 10 captures light reflected from the surface of target 4 (column 5, lines 49-53) when the light is aimed at point P (column 6, lines 49-51). The light is moved "according to a predetermined scheme" ("a preset program") (column 3, lines 4-5).

An advantage to using a movable point light source to capture an image of an object is that detected changes in the reflection of a point light source may be used to determine three-dimensional measurements of the object. For this reason, it would have been obvious at the time of invention to have Ooyama's imaging system include Sato's system for profiling a three-dimensional object.

21. Claims 15, 16, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooyama in view of Ishibashi (U.S. Patent No. 6,215,461).

Claims 15 and 27 may be treated like claims 1 and 2, respectively. However, Ooyama is silent with regard to including a head-mounted display.

Ishibashi, as shown in Figure 1, discloses a head-mounted display 2 connected to three-dimensional camera system 1. A stereoscopic image is displayed in the head-mounted display (column 3, lines 14-24).

An advantage to using a head-mounted display is that a more realistic image can be provided to a viewer. For this reason, it would have been obvious at the time of invention to have Ooyama's system include a head-mounted display, such as the one described by Ishibashi.

Regarding claim 16, Ishibashi teaches that gyroscopes 405 and 406 are attached to head-mounted display 2 (column 4, lines 3-5). The gyroscopes detect the movement of the user's head and move camera 1 accordingly (column 4, lines 48-54).

Conclusion


22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason T. Whipkey, whose telephone number is (703) 305-1819. The examiner can normally be reached Monday through Friday from 9 A.M. to 6:30 P.M. eastern daylight time, alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 2600 Customer Service Office, whose telephone number is (703) 306-0377.

JTW
JTW
October 30, 2003


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600